Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system for management of a multi-level railway system having a railroad infrastructure, a railroad track network, a train, a consist of trains and a locomotive and [[its]] their operational components, the railway system comprising:

a first processor associated with a railroad infrastructure level configured to control an operation of [[a]] the railroad infrastructure, said railroad infrastructure including servicing operations;

a second processor associated with a railroad track network level configured to control an operation of [[a]] the railroad track network, wherein the railroad track network level is a sub-level of said railroad infrastructure level;

a third processor associated with a train level configured to control an operation of [[a]] the train, wherein the train level is a sub-level of said railroad track network level;

a fourth processor associated with a consist level configured to control an operation of [[a]] the consist of [[a]] trains, wherein the consist level is a sub-level of said train level; and

a fifth processor associated with a locomotive level configured to control an operation of [[a]] the locomotive, wherein the locomotive level is a sub-level of said consist level;

said first processor generating service plan data provided to at least one other processor of the system, said first processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the railroad infrastructure and to generate output instructions corresponding to the defined operational characteristics and performance data for the railroad infrastructure, and said first processor controlling the operation of service

operations of the railroad infrastructure in accordance with the generated output instructions for the railroad infrastructure;

said second processor generating train movement plan data provided to at least one other processor of the system, said second processor responsive to service plan data provided by the first processor to define operational characteristics and performance data for the railroad infrastructure level and to generate output instructions corresponding to the defined operational characteristics and performance data for the railroad infrastructure level, and said second processor controlling the operation of the railroad infrastructure level in accordance with the generated output instructions for the railroad infrastructure level;

said third processor generating data provided to at least one other processor of the system, said third processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the train and to generate output instructions corresponding to the defined operational characteristics and performance data for the train, and said third processor controlling the operation of the train in accordance with the generated output instructions for the train;

said fourth processor generating data provided to at least one other processor of the system, said fourth processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the consist and to generate output instructions corresponding to the defined operational characteristics and performance data for the consist, and said fourth processor controlling the operation of the consist in accordance with the generated output instructions for the consist; and

said fifth processor generating data provided to at least one other processor of the system, said fifth processor responsive to generated data generated by at least one other processor of the system to define operational characteristics and performance data for the locomotive and to generate output instructions corresponding to the defined operational characteristics and performance data for the locomotive, and said fifth processor controlling the operation of the locomotive in accordance with the generated output

instructions for the locomotive whereby said first, second, third, fourth and fifth processors control operation of the multi-level railway system across the railroad infrastructure level, the railroad track network level, the train level, the consist level, and the locomotive level of the multi-level railway system as a function of the generated data

~~each processor associated with each level receiving input data defining operational characteristics and performance data for the associated level wherein each processor is responsive to the received input data to generate output instructions, and wherein each processor controls the operation in the associated level in accordance with the generated output instructions; and~~

~~each processor further generating operating commands and parameter data and providing the generated command and parameter data to a processor associated with at least one other level, and wherein the processor associated with the at least one other level is responsive~~ to ~~the received generated operating commands and parameter data to control an operation across all the levels of the railway system as a function of the generated command data~~ .

Claim 2 (canceled).

Claim 3 (currently amended): The system of claim 1 wherein the input data received by the first processor associated with the railroad infrastructure level includes ~~one or more of~~:

railroad infrastructure data, wherein said railroad infrastructure data includes characteristics of service facilities of the railroad infrastructure;

railroad track network data; and

train data; and

wherein the first processor controls [[an]] the operation of [[a]] the railroad infrastructure within the railroad infrastructure level based on the received infrastructure data, the received railroad track network data, and the received train data.

Claims 4 -7 (canceled).

Claim 8 (currently amended): The system of claim 1, wherein the output instructions generated by the first processor associated with the railroad infrastructure includes operating commands, and wherein the ~~generated~~ data ~~is~~ generated by the first processor ~~and~~ includes operating commands to the second processor associated with the railroad track network level and commands to the third processor associated with the train level.

Claims 9 -13 (canceled).

Claim 14 (currently amended): A multi-level system for management of a railway system and its operational components, the railway system comprising:

a first level configured to control [[an]] <u>a servicing</u> operation within the first level, said first level including first level operational parameters defining changes in operational characteristics <u>of service facilities of the railroad infrastructure</u> and data of the first level ~~over a period of time~~; and

a second level configured to control an operation within the second level, said second level including second level operational parameters defining changes in the operational characteristic and data of the second level ~~over a period of time,~~ wherein the second level is a sub-level of said first level;

said first level providing the second level with the first level operational parameters <u>at regularly scheduled intervals</u>, and the second level providing the first level with the second level operational parameters <u>at periodic intervals</u>; and

said controlling the operation within the first level and said controlling the operation within the second level each being a function of the first and second level operational parameters.

Claim 15 (previously presented): The system of claim 14 wherein the first level operational parameter and the second level operational parameter are indicative of fuel usage in the railway system.

Claim 16 (previously presented): The system of claim 14 wherein the first level operational parameter and second level operational parameter are indicative of an economic valuation of the time of delivery of cargo carried in the railway system.

Claim 17 (canceled):

Claim 18 (currently amended): The system of claim 14 wherein the operational parameters are indicative of predetermined changes in conditions over ~~the~~ a period of time.

Claim 19 (original): The system of claim 18 wherein the operational parameters are indicative of a rate of change in the conditions.

Claim 20 (original): The system of claim 19 wherein the rate of change is with respect to time.

Claim 21 (original): The system of claim 19 wherein the rate of change is the change in one condition with respect to another.

Claim 22 (currently amended): The system of claim 14 wherein ~~an extent of compliance~~ an operational parameter of the second level relevant to ~~with~~ the system optimization parameter is communicated periodically from the second level to the first level for adjusting the first and second level operational parameters based thereon.

Claims 23-25 (canceled).

Claim 26 (previously presented): The system of claim 22 wherein controlling the operation within the first level and controlling the operation within the second level includes identifying operating constraints and data at one of the first and second level and communicating these operating constraints and data to another of the first and second level to improve performance of the operation at the another level.

Claims 27-49 (canceled).

Claim 50 (currently amended): A system for management of a multi-level railway system and its operational components, the railway system comprising:

a first level including first level operational parameters defining changes in operational characteristics of service facilities of the railway system and data of the first level ~~over a period of time~~; and

a second level including second level operational parameters configured to control an operation within the second level as a function of the first level operational parameters and second level operational parameters and wherein the second level operational parameters are indicative of changes in operational characteristics and data of the second level ~~over a period of time~~, wherein the second level is a sub-level of said first level; and

said second level continuously providing the first level with second level operational parameters, and wherein said first level continuously determines the first level operational parameters as a function of the provided second level operational parameters.

Claim 51 (canceled).

Claim 52 (previously presented): The system of claim 50 wherein the first and second level operational parameters are indicative of a change in fuel usage in the railway system.

Claim 53 (previously presented): The system of claim 50 wherein the first and second level operational parameters are indicative of a change in an economic valuation of the time of delivery of cargo carried in the railway system.

Claim 54 (previously presented): The system of claim 50 wherein the second level operational parameters are provided from the second level to the first level at predetermined intervals.

Claim 55 (original): The system of claim 50 wherein the second level is a portion of the first level.

Claim 56 (original): The system of claim 51 wherein the system operational parameter is indicative of a rate of change in second level operational parameters.

Claim 57 (original): The system of claim 56 wherein the rate of change is with respect to time.

Claim 58 (original): The system of claim 56 wherein the rate of change is the change in one condition with respect to another.

Claim 59-61 (canceled).

Claim 62 (original): The system of claim 50 wherein the first level monitors whether or not the optimized second level operation is within predetermined limits.

Claims 63-75 (canceled).

Claim 76 (previously presented). The system of claim 1 wherein the generated data comprises at least one of: an operating command, an operational limitation, and information associated with the level generating said data.